

What is claimed is:

1. A method for making flexible graphite sheet, the method comprising:
 - (i) providing graphite flake sized no more than about 30% by weight +80 mesh;
 - (ii) treating the graphite flake with an intercalating solution to obtain heat expandable, intercalated graphite flake;
 - (iii) exposing the intercalated graphite flake to an elevated temperature to exfoliate the intercalated graphite flake into expanded particles of graphite; and
 - (iv) passing the expanded particles of graphite through pressure rolls to form a compressed sheet having opposed major surfaces.
2. The method of claim 1 wherein the graphite flake is sized at least about 50% by weight 80 x 140 mesh.
3. The method of claim 2 wherein the graphite flake has a moisture content of no greater than about 1.0%.
4. The method of claim 3 which further comprises forming transverse fluid channels in the compressed sheet by mechanically impacting a surface of the sheet to displace graphite within the sheet at a plurality of predetermined locations.
5. The method of claim 4 which further comprises forming at least one groove in at least one of the surfaces of the sheet by mechanically impacting an opposed surface of the sheet.
6. A flexible graphite sheet comprising a compressed mass of expanded graphite particles, the expanded graphite particles formed from graphite flake sized no more than about 30% by weight +80 mesh prior to expansion.

7. The flexible graphite sheet of claim 6 wherein the graphite flake is sized at least about 50% by weight 80 x 140 mesh prior to expansion.

8. The flexible graphite sheet of claim 7 wherein the graphite flake has a moisture content of no greater than about 1.0% prior to expansion.

sub A₃ > 9. The flexible graphite sheet of claim 8 which further comprises a plurality of transverse fluid channels formed in the compressed sheet at a plurality of predetermined locations.

10. The flexible graphite sheet of claim 8 which further comprises at least one groove formed in at least one of the surfaces of the sheet by mechanically impacting an opposed surface of the sheet.

11. A membrane electrode assembly comprising a pair of electrodes and an ion exchange membrane positioned between the electrodes, at least one of the electrodes being formed of a sheet of a compressed mass of expanded graphite particles, the expanded graphite particles formed from graphite flake sized no more than about 30% by weight +80 mesh prior to expansion.

12. The assembly of claim 11 wherein the graphite flake is sized at least about 50% by weight 80 x 140 mesh prior to expansion.

13. The assembly of claim 12 wherein the graphite flake has a moisture content of no greater than about 1.0% prior to expansion.

14. The assembly of claim 11 which further comprises a plurality of transverse fluid channels formed in the compressed sheet at a plurality of predetermined locations.

15. The assembly of claim 11 which further comprises at least one groove formed in at least one of the surfaces of the sheet by mechanically impacting an opposed surface of the sheet.

16. A sealing-gasket formed of a flexible roll-pressed sheet of expanded natural graphite the expanded graphite particles formed from graphite flake sized no more than about 30% by weight +80 mesh prior to expansion.

17. The gasket of claim 16 wherein the graphite flake is sized at least about 50% by weight 80 x 140 mesh prior to expansion.

18. The gasket of claim 17 wherein the graphite flake has a moisture content of no greater than about 1.0% prior to expansion.

19. The gasket of claim 16 which further comprises a plurality of transverse fluid channels formed in the compressed sheet at a plurality of predetermined locations.

20. The gasket of claim 16 which further comprises at least one groove formed in at least one of the surfaces of the sheet by mechanically impacting an opposed surface of the sheet.

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